communications to the second server device over the established network link use HATP protocol.

37. (New) The server device of claim 8 wherein the client device is able to perform services for other devices, and wherein the processing unit is further operable to:

obtain information from the client device about the services that the client device is able to perform;

send to the second server device the obtained information from the client device; and

facilitate performance of services for the second server device by the client device by forwarding service requests received from the second server device to the client device.

REMARKS

Overview

The Examiner has responded in the prior Office Action as follows: objected to the specification; objected to the drawings; rejected claims 18-25 under 35 U.S.C. § 112 second paragraph as being indefinite; rejected claims 1, 4-9, 16-18, 20, 26-28 and 30 under 35 U.S.C. § 102(e) as being anticipated by Rossman (U.S. Patent No. 6,430,409); rejected claims 2, 10-11 and 19-25 under 35 U.S.C. § 103(a) as being unpatentable over Rossman in view of Bui (U.S. Patent No. 6,412,007); rejected claim 29 under 35 U.S.C. § 103(a) as being unpatentable over Rossman in view of Craddock (U.S. Patent No. 6,351,771); and rejected claim 3 under 35 U.S.C. § 103(a) as being unpatentable over Rossman in view of an Official Notice of obviousness.

Applicant hereby amends claims 1, 4-8, 11, 16-19 and 25-30 in order to clarify the subject matter of the invention, and adds claims 31-37. Thus, claims 1-11 and 16-37 are now pending. In addition, Applicant hereby amends the specification as indicated. Also, a separate petition for a 1-month extension of time accompanies this amendment.

Embodiments of the Present Invention

Embodiments of the present invention are directed to facilitating communications between devices (*e.g.*, consumer devices that are remote from each other), such as to allow a client device to request that a service be provided and to assist in having another device perform the requested service in response. In some embodiments, the requested services may be provided in a transparent manner such that the client device does not even know the identity or location of the other device that performs the service, and thus does not directly communicate with that other device. The providing of such requested services by remote devices is enabled in some embodiments by using intermediate servers that communicate with each other, such as remote intermediate servers that are each local to one of the devices. In such embodiments, the devices may communicate only with their local intermediate server, with the intermediate servers inter-communicating to facilitate requested services being performed.

In some embodiments, the intermediate servers provide additional functionality to assist in the providing of services. For example, intermediate servers may query local devices with which they communicate to determine services available from those devices, and may then maintain a listing of available services that can be provided to other remote client devices via other intermediate devices so that those remote devices can request the services. In addition, in some embodiments the intermediate servers may also provide their own services to remote client devices. Intermediate servers may also provide various authorization functionality before allowing services to be requested and performed, as well as a variety of other functionality.

The Rossman Reference

Rossman describes a problem in the prior art that stems from wireless two-way data communication devices (*e.g.*, cell phones and two-way pagers) having closed proprietary systems in which they can only access information provided by the companies that provide those devices. In response, Rossman describes techniques for loading a software module on such wireless communication devices to enable them to

access information in a non-proprietary manner from any server computer that is part of the same network as the device, by directly communicating with such server computers. In particular, the wireless communication device can directly contact such a server by specifying a resource locator that includes the address of the server, and thus obtain information from that server computer in a response message. In addition, Rossman discloses that the server computer may provide information about functionality that the server computer provides, so that the data communication device can request that the server provide such functionality in a similar manner directly from the server computer. The server computer can also provide address information for other server computers on the network so that the wireless communication device can similarly directly contact such other server computers to obtain information. (Rossman: 3:61-4:12, 3:50-60, 4:33-5:7, 8:10-65, 10:28-39.)

Thus, Rossman merely describes how a communication device can directly access information from a server computer by specifying the address of that server computer and receiving a response directly from that server computer. Rossman appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application, and in particular does not allow a client device to request and receive services in a manner transparent to that client device.

The Bui Reference

Bui is generally directed to authorizing data communication sessions that occur directly between a client and a server. (Bui, Abstract.) Bui appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application.

The Craddock Reference

Craddock is generally directed to providing information and services to users by employing an intermediate architecture that performs various functions, such as automatically converting data formats and transportation protocols as appropriate.

(Craddock, 3:52-4:25.) Craddock similarly appears unrelated to the use of intermediate servers that facilitate communications in the manner described and claimed in the present application.

Analysis

The Examiner has objected to the drawings on the basis that Figure 3 and Figure 4 each include a reference number (numbers 318 and 430, respectively) that is not mentioned explicitly in the specification, and has objected to the specification as not showing an included reference number in bold. The specification has been amended to address these objections, and has also been amended to include the serial number of a related patent application. Therefore, Applicant requests that these objections be withdrawn.

The Examiner has rejected claims 18-25 as indefinite on the basis of the recitation "wherein the service request from the local device comprises a request to establish a logical connection between the local device and the remote server", which the Examiner has indicated lacks sufficient antecedent basis. Applicant respectfully points out that the cited element was not indefinite, as follows: the term "the service request" found antecedent basis in the recitation "a service request from the local device" in line 8 of claim 16 as filed (from which claim 18 depended), the term "the local device" found antecedent basis in the recitation "a local device" in line 4 of claim 16 as filed, and the term "the remote server" found antecedent basis in the recitation "a remote server" in line 5 of claim 16 as filed. Therefore, Applicant requests that this rejection be withdrawn.

The Examiner has also rejected each of the previously pending claims as being unpatentable over Rossman, either alone or in combination with other references. Applicant respectfully traverses this rejection and notes that each of the previously pending claims as rejected included features and provided functionality not disclosed by Rossman or the other references as cited. For example, each of the previously pending claims 1-7, 10-11 and 16-30 generally recited a communications architecture in which a local client device is able to request services from another device by using a

connection established between at least two intermediate servers to facilitate the service requests. While the Examiner asserted that Rossman discloses such an architecture (in particular, the Examiner asserts that Rossman discloses a cell phone requesting services to be performed by another telephone by first communicating with a computer server on a corporate WAN that then communicates over a two-way pager network with a computer server on the Internet that communicates with the telephone over the public switched network), Applicant can find no teaching or suggestion in Rossman or the other cited references of performing such activities – instead, the network diagram on which the Examiner bases his rejection is merely used by Rossman to describe how each of different types of client devices (including a cell phone, a two-way pager and a telephone) can directly access a computer server that is part of their network. (Rossman, 8:10-17, 8:1-9:8.) Thus, each of the previously pending claims as rejected was allowable over the cited references.

Moreover, the pending claims have been amended to clarify the subject matter recited, with the claims as amended clearly patentable over the cited references. For example, independent claims 1 and 16 as amended further clarify the role of the intermediate servers in assisting a local client device to request services from a remote device without the local client device directly addressing the remote device or even needing to know the identity or location of the remote device. Claim 1 as amended recites "establishing a link between the first consumer device and the remote second device that allows the first consumer device to access services from the remote second device" by having each of the devices communicate with an intermediate server that is local to that device and by having those two remote intermediate servers inter-communicate, such that the claim recites that "communications from the first consumer device to the remote second device are forwarded along the link by the first and second servers in a manner transparent to the first consumer device". Thus, the consumer device merely communicates with its local intermediate server to request a service, and that intermediate server facilitates the performance of the service in a transparent manner. Claim 16 as amended further recites that the local client device is "designed to communicate only with other local client devices" and that a local intermediate server is able to communicate with the local client device to forward requests for services to a

remote device via an intermediate server local to that device. The other independent claims similarly recite intermediate servers inter-communicating to assist a client device in accessing services.

Conversely, neither Rossman nor the other cited references appear to teach or suggest using intermediate servers in the manner recited in the claims. Instead, Rossman makes clear that its described techniques allow a client device to directly access a remote computer server, such as by stating that "a user can access an application from anywhere as long as the user has a two-way communication device that can communicate with that server computer" (Rossman, 8:31-33, emphasis added), and in particular by the communication device specifying resource locators that directly address the server computer from which information will be received, as follows:

> the two-way data communication device of this invention utilizes a client module to transmit a message including a resource locator selected by the user over the two-way data communication network to a server on a server computer on the computer network. . . . The server processes the message, i.e, executes the application addressed by the resource locator and transmits a response over the two-way data communication network to the two-way data communication device . . . [t]he resource locator . . . can address any one of a wide variety of objects . . . on the server computer that transmitted the response . . . [or] on another server computer coupled to the two-way data communication network.
> Rossman, 4:33-59 (emphasis added).

The other cited references similarly do not appear to disclose using intermediate servers in the claimed manner, and thus the pending claims as amended are allowable for at least these reasons.

In addition, at least some of the pending claims recite additional functionality performed by the intermediate servers, with such functionality further distinguishing the claims from the cited references. For example, claims 10 and 11 recite that an intermediate server maintains a listing of the services available from a device to which it is connected and provides that list to the client device via the other intermediate server upon request. In this way, by using intermediate servers the client device can discover and access available services without knowing who provides those services. None of the cited references appear to teach or suggest similar functionality. While the Examiner asserts that Rossman provides similar functionality, the passage cited by the Examiner merely discusses that a server computer may specify particular servers that

have available functionality or information so that a communication device can directly access those servers. Applicant can find no mention in Rossman of the server computer gathering and maintaining information for other devices that can be accessed by the client device via the intermediate servers in the recited manner.

Applicant also notes that the Examiner has taken Official Notice that sending a status message from the second device to the first device would be obvious. While Applicant agrees that some devices generally send status messages directly to other devices to which they are connected, Applicant does not agree that it would be obvious to send such status messages via the intermediate servers in the manner claimed. If the Examiner maintains this rejection in the next Office Action, Applicant therefore requests that the Examiner cite a reference in support of his position pursuant to M.P.E.P. 2144.03 and the PTO's memo on "Procedures for Relying on Facts Which are Not of Record as Common Knowledge or for Taking Official Notice" dated February 21, 2002.

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the prior art. A Notice of Allowance is, therefore, respectfully requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (206) 583-8888.

Respectfully submitted,
Perkins Coie LLP

Date: 2/4/03

James A. D. White
Registration No. 43,985

Correspondence Address:
Customer No. 25096
Perkins Coie LLP
P.O. Box 1247
Seattle, Washington 98111-1247

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

at line 10 of page 1:

This application is related to U.S. Application Serial No. 09/369,118, ~~____/____~~, entitled "Universal Protocol for Enabling a Device to Discover and Utilize the Services of Another Device," filed on August 5, 1999. ~~_____ and assigned to Convergence Corporation, the assignee of the present application.~~

at line 9 of page 2:

The inventor of the present invention has developed a protocol and method to facilitate communication between various electronic devices and the sharing of features, functionality and information between these devices which has been described in the invention, U.S. Application Serial No. 09/369,118, ~~____/____~~, entitled~~,~~ "Universal Protocol for Enabling a Device to Discover and Utilize the Services of Another Device," the entirety of which is incorporated herein by reference. This universal protocol is known as the Service Discovery Transport Protocol ("SDTP").

at line 8 of page 21:

At this point, the local client device **210**, in the illustrated embodiment a two-way pager, may seek to access services from the remote server device **230**. For example, the local client device **210** may issue the STAT command **382** to seek the status of the alarm system at the office. The local HATP server **230** will relay this command to the remote HATP server **230** by issuing the STAT command **384** ~~384~~ which will in turn relay this service to the remote server **240** by issuing the STAT command **386**. The remote server device, security system, will determine its status, in this case ARMED, and send this information back to the remote HATP server **220** by replying with the response ARMED **388**. The remote HATP server **230** will forward the armed response

390 to the local HATP server **220** which will in turn respond to the local client **210** with the ARMED response **392**. Through the mechanism described above, a local client device can access services from a remote server device.

at line 10 of page 20:

From this time until a DISCONNECT command is sent from the client **210** to its local HATP server **220**, all remote SDTP devices which have an established link layer with the remote HATP server (a) will appear to the local SDTP device to be located locally and (b) will respond to any service requests initiated from the local SDTP device. In the exemplary embodiment of Fig. 2 and Fig. 3, a security system **240** is remotely located at the site of the remote HATP server **230**. At some earlier point in time, the security system **240** established a link **316** with the HATP server **230** and sent a message "SDTP Ver:1.0 Conv. Corp. 1998" **318** to the HATP server **230**. The HATP server **230** issued a TYPE command **320** to the security system **240**. The security system **240** responded with its ID and services **322-330**. In this example, the response consisted of the following services STAT **324**, ON **326**, and OFF **328**. While this example, for illustration, shows only a single SDTP device, multiple SDTP devices could have established links with the HATP server **230**.

at line 7 of page 22:

Also from READY state **400**, the HATP server may receive a TYPE command **425** from any SDTP devices that have established a link layer with the HATP server. The HATP server would then respond **430** with its own ID of HATP and a listing of its available services: CONNECT & DISCONNECT.

In the Claims:

1. (Amended) A method for a first consumer device to access ~~the~~ services of a remote second device, comprising the steps of:

establishing a link between the first consumer device and the remote second device that allows the first consumer device to access services from the remote second device, by

____establishing a first~~,~~ communicative connection between the first consumer device and a first server that is local to the first consumer device;

____establishing a second communicative connection between the first server and a second server that is remote from the first server and local to the second device; and

____establishing a third~~,~~ communicative connection between the second server and the second device~~,~~;

wherein the established link includes the first, second and third communicative connections and wherein communications from the first consumer device to the remote second device are forwarded along the link by the first and second servers in a manner transparent to the first consumer device;

requesting a service~~, by the first device,~~ that is available from the second device, the requesting by the first consumer device and utilizing the established link ~~first, second, and third communicative connections~~; and

performing~~, at the second device,~~ the requested service at the second device.

4. (Amended) The method of claim 1 further comprising, after the establishing ~~a~~ of the second communicative connection ~~step~~, the step of reporting to the first device a listing of services available from the second device.

5. (Amended) The method of claim 1 wherein the establishing ~~a~~ of the first communicative connection ~~step~~ comprises the step of establishing a wireless communicative connection between the first consumer device and ~~a~~ the first server.

6. (Amended) The method of claim 1 wherein the establishing ~~a~~ of the third communicative connection ~~step~~ comprises the step of establishing a wireless communicative connection between the second device and the second server.

7. (Amended) An apparatus ~~implementing the method of claim 1.~~ for accessing services of another device, comprising:

a first module capable of initiating establishment of a first communicative connection to a local server, of initiating establishment of a second communicative connection between the local server and a remote server proximate to the other device, and of initiating establishment of a third communicative connection between the remote server and the other device; and

a second module capable of requesting a service from the other device via the first, second, and third communicative connections,

so that the other device will perform the requested service.

8. (Amended) A server device that is capable of communicating over a first communications link with a client device and over a second network link ~~to~~ with a second server device, comprising:

a communications link interface for communicating between the server device and the client device;

a network interface for communicating between the server device and a second server device; and

a processing unit, being operable to send and receive data over the communications link interface and over the network interface, ~~said processor~~ the processing unit being further operable to:

establish a communications link for data communication through the link interface with ~~a~~ the client device;

establish a network link for data communication through the network interface to the second server device;

provide information to the client device about available services by,

obtaining information from the second server device about services available via the second server device; and

sending to the client device information about available services that includes the obtained information from the second server device; and

facilitate performance of services for the client device by,

____forwarding service requests from the client device to the second server device for one or more of the available services whose information was obtained from the second server device and sent to the client device; and

____forwarding responses to at least some of the service requests from the second server device to the client device.

11. (Amended) An first client apparatus ~~implementing the method of Claim 10~~ for accessing services supplied by a second apparatus, comprising:

means for initiating establishment of a first link between the first apparatus and a first server;

means for transmitting a connection command over the first link to the first server, the connection command being operative to request a connection with a remote second server and comprising a user identification, and a password;

means for receiving notification from the first server over the first link of acceptance of the connection command by the second server, the receiving of the acceptance notification after a second link is established between the first server and the second server, after the connection command is transmitted over the second link from the first server to the second server, and after the second server verifies authorization of the user identification and password;

means for requesting a listing from the first server of one or more services available from the second apparatus, wherein the second server maintains such a listing based on information obtained from the second apparatus over a third link communicatively coupling the second server to the second apparatus, wherein the first server obtains the listing from the second server;

means for receiving from the first server the requested listing; and

means for requesting a service from the listing to be performed by the second apparatus by relaying a service request to the second apparatus via the first server, such that the requested service will be performed by the second apparatus.

16. (Amended) A system for allowing client devices remote from each other to communicate via intermediate server devices, ~~and share information, resources, and functionality, that normally could not communicate due to the inability to communicate directly with each other,~~ the system comprising:

a local server able to communicatively couple to a ~~local~~ client device that is local to the local server, the local client device designed to communicate only with other local client devices, the local server also able to communicatively couple to a remote server, ~~;~~

~~a remote server able to communicatively couple to a remote device and to the local server;~~

the local server ~~being~~ operative to:

receive a ~~service~~ request from the local client device for an indicated service to be performed;

provide a request message to the remote server to perform the indicated service ~~of the reception and content of the service request~~;

receive a response message from the remote server, the response message being affiliated with the request message; and

respond to the local client device with information indicative of the response message; and

the remote server able to communicatively couple to the local server and to a remote client device that is local to the remote server, the remote server ~~being~~ operative to:

receive the request message from the local server;

perform further processing ~~commensurate with~~ based on the request message; and

provide the response message to the local server~~.~~

so that the local client device can request services that are provided by the remote client device by using the local and remote servers as intermediaries.

17. (Amended) The system of claim 16, wherein the ~~service~~ request from the local device comprises a request to establish a logical connection ~~between the local device and~~ to the remote server and includes an IP network address of the remote server.

18. (Amended) The system of claim 16, wherein the ~~service~~ request from the local device comprises a request to establish a logical connection between the local device and the remote server.

19. (Amended) The system of claim 18, wherein the ~~service~~ request from the local device further includes a user identification and a password, and the ~~local server is operative to~~ provideing of the request message to the remote server and the receiveing of the ~~a~~ response message from the remote server ~~by~~ includes:

establishing a link with the remote server;

transmitting the user identification to the remote server;

receiving a first status indicator from the remote server in response to the user identification;

transmitting the password to the remote server; and

receiving a second status indicator from the remote server in response to the password.

25. (Amended) The system of claim 19, wherein the ~~local server is operative to~~ responding to the local device with information indicative of the response message ~~by being further operative to~~ includes:

providinge a first response if the response message indicates that the logical connection could not be established;

providinge a second response if the response message indicates that the user identification and password are not both acceptable by the remote server;

providinge a third response if the response message indicates that the logical connection is established; and

providinge a fourth response if the response message indicates that a logical connection already exists with another server.

26. (Amended) The system of claim 16, wherein the ~~service~~ request message from the local device comprises a request to disconnect a logical connection ~~between the local device and~~ to the remote server.

27. (Amended) The system of claim 16, wherein the ~~service~~ request from the local device comprises a request to disconnect a logical connection between the local device and the remote server, ~~and~~ wherein the ~~local server is operative to~~ provideing of the request message to the remote server ~~by:~~ includes transmitting to the remote server, a request to disconnect the logical connection between the local device and the remote server,; and wherein the receiving of the response message from the remote server includes receiving a status indicator from the remote server indicating that the logical connection is disconnected.

28. (Amended) The Ssystem of claim 16, wherein the ~~service~~ request ~~message~~ from the local device comprises a request for the remote device to provide a service.

29. (Amended) The Ssystem of claim 16, wherein the ~~service~~ request ~~message~~ from the local device comprises a request for the remote server to identify a device type and a service type for at least one remote device that can be communicatively coupled to the remote server.

30. (Amended) The Ssystem of claim 16, wherein the ~~service~~ request ~~message~~ from the local device comprises a request for the remote device to provide a service, and wherein the ~~remote device is operative to~~ performing of the further processing ~~commensurate with the request message from the local server by~~ includes

requesting the remote device to perform the service identified in the service request and the request message.